



Statistical Approaches in the NIST World Trade Center Analysis

by James J. Filliben

Tuesday, November 22, 2005

10:30 a.m., Bldg 101, Green Auditorium



The Congressionally-mandated NIST Federal Building and Fire Safety Investigation of the World Trade Center Disaster is coming to completion. The buildings' degradation immediately prior to collapse was extremely complicated, with structural, thermal, dynamic, and stochastic interdependencies existent across both time and space. Four pre-collapse stages (a simplification of reality) will be discussed: aircraft impact, fire spread, thermal propagation through insulation, and structural deformation. Lack of data from the buildings' core necessitated heavy use of FEA computational models. In this context, this talk will focus on the statistical methodologies that were brought to bear in the WTC investigation. This talk is statistical in nature, covering both experiment design and statistical analysis methods; for the WTC study's detailed engineering conclusions and recommendations, see the (10,000 page) final report via <http://wtc.nist.gov>.

Dr. Filliben is a Staff Research Scientist in the Statistical Engineering Division (ITL) at NIST and he leads the Statistical Modeling and Analysis Group. Dr. Filliben is a graduate of Princeton University and has had a long (36 y) and distinguished career at NIST. He is a Fellow of the American Statistical Association and a recipient of the Department of Commerce's Bronze, Silver and Gold Medals.